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Serial No. : 09/369,735
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Attorney's Docket No.: 11059-002001 / PH67905

BEST AVAILABLE COPYAmendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1-7. (Canceled)

8. (Currently Amended) A process for the hydrolysis of a β -glycoside having a long alkyl chain at the reducing end, comprising contacting the β -glycoside with a thermophilic enzyme comprising the amino acid sequence of SEQ ID NO: 2, wherein the long alkyl chain is an alkyl group having carbon atoms of 8 or more.

9. (Canceled)

10. (Original) The process of claim 8, wherein the hydrolysis is carried out at a temperature of 85°C or higher.

11. (Original) The process of claim 8, wherein the hydrolysis is carried out at a temperature of 100°C or higher.

12-13. (Canceled)

14. (Currently Amended) A method for using a thermophilic enzyme as a β -glycosidase, comprising the following steps:

(a) providing an enzyme, wherein the enzyme comprises four subunits to form a tetramer, wherein each subunit of the tetramer comprises a sequence as set forth in SEQ ID NO:2; and

(b) contacting the tetrameric enzyme with a β -glucoside comprising a long alkyl chain under conditions wherein the enzyme functions as a β -glycosidase, wherein the long alkyl chain comprises 8 or more carbon atoms.

15-16. (Canceled)

17. (Previously presented) The method of claim 14, wherein the enzyme has a high affinity to a β -glucoside comprising a long alkyl chain.

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18. (Previously presented) The method of claim 14, wherein the β -glucoside having a long alkyl chain is selected from the group consisting of n-Dodecyl- β -D-Glcp and n-Octyl- β -D-Glcp.

19. (Previously presented) The method of claim 14, wherein the function comprises synthesis of an oligosaccharide or a heterosaccharide with optical purity.

20. (Previously presented) The method of claim 14, wherein the conditions comprise temperatures selected from the group consisting of 90°C or higher and 100°C or higher.

21. (Previously presented) The method of claim 14, wherein the conditions comprise an organic solvent.

22. (Previously presented) The method of claim 14, wherein the enzyme is encoded by a nucleotide sequence comprising SEQ ID NO:1.

23. (Previously presented) The method of claim 14, wherein the enzyme is encoded by a nucleotide sequence capable of hybridizing to SEQ ID NO:1, or its complement, under moderately stringent conditions of 6xSSC and 40% formamide at 42°C.

24. (Previously presented) The method of claim 23, wherein the hybridization further comprises a washing step carried out in 1xSSC and 0% formamide at 55°C.

25-33. (Canceled)

34. (Previously Presented) The process of claim 8, wherein the β -glycoside is contacted with the enzyme in 50 mM phosphate buffer (pH 6.0) with 0.1% Triton X-100 and 0.3 M NaCl at 90 °C.